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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,811	03/22/2004	Kevin T. Marks	016295.1576	1073

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EXAMINER

MASDON, DAVID T

ART UNIT PAPER NUMBER

2188

DATE MAILED: 04/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/805,811

Applicant(s)

MARKS ET AL.

Examiner

David Masdon

Art Unit

2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Drawings*

1. The drawings filed on 3-22-2004 have been approved by the examiner.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-20 rejected under 35 U.S.C. 102(e) as being anticipated by Horst et al (US 6,567,892).

With regard to claim 1, Horst et al discloses a method for managing the rebuild commands directed to a drive, the drive having a non-volatile memory [(nonvolatile memory) column 3, lines 42-43] and a cache [(write cache) column 2, line 27];

enabling the cache of the drive; [(write cache is enabled) column 2, lines 28-29]

recording in a first memory location the rebuild commands directed to the drive; and [(record write operations in nonvolatile memory) column 15, lines 10-15]

periodically causing the drive to flush the cached data associated with the rebuild commands to its non-volatile memory; [(flush preferably performed whenever host runs out of commands to controller) column 7, lines 55-57]

wherein the each command directed to drive is at least temporarily recorded in the memory location during the period that the cache of the drive is enabled. [(while cache enabled, data is flushed periodically) column 2, lines 26-37]

With regard to claim 2, Horst et al discloses the method for managing the rebuild commands directed to a drive of claim 1, further comprising the step of disabling the cache of the drive following the successful rebuild of the drive. [(disabling the cache) column 6, line 53]

With regard to claim 3, Horst et al discloses the method for managing the rebuild commands directed to a drive of claim 2, wherein the step of causing the drive to flush the cached data to its non-volatile memory comprises the steps of:

maintaining a count of the number of commands stored in the first memory location; and [(read counter) column 8, line 6]

causing the drive to flush the data to its non-volatile memory when the count of the number of commands stored in the first memory location reaches a predetermined threshold. [(counter triggers flush when predetermined number M reached) column 8, lines 1-15]

With regard to claim 4, Horst et al discloses the method for managing the rebuild commands directed to a drive of claim 3, further comprising the step of clearing the first memory location and the count following the successful flushing of data from the cache to the non-volatile memory. [(binmap is cleared when cache is flushed) column 3, line 7]

Claim 5 rejected with same rationale as claim 1. Also, Horst et al also discloses multiple drives and drive controllers, each controller being associated with and coupled to a drive of the array. [(disk array and an array controller) column 5, lines 12-14] Horst et al also discloses a drive controller with a first memory that stores a history of write commands. [(record write operations in nonvolatile memory) column 15, lines 10-15]

Claim 10 rejected with same rationale as claim 1. Also, Horst et al also discloses writing one or more commands to a journal. [(record write operations in nonvolatile memory) column 15, lines 10-15] Recording write operations in memory, as Horst et al discloses, is analogous to writing commands to a journal.

Claims 6, 11, 14 and 16 rejected with same rationale as claim 4. Also, Horst et al also discloses transmitting a message indicating that the cached data was written to the media. [(when flushes are finished controller sends completion interrupts to host) column 7, lines 43-44]

Claims 7, 8 and 13 rejected with same rationale as claim 3.

With regard to claim 9, Horst et al discloses the storage array of claim 5, wherein the first memory is non-volatile. [(nonvolatile memory) column 3, lines 42-43]

Claims 12, 15 and 19 rejected with same rationale as claim 2.

Claims 17 and 20 rejected with same rationale as claim 9.

Claim 18 rejected with same rationale as claims 3 and 1.

### ***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fairchild	2003/0053237
Forehand et al.	2002/0029354
Hetzler et al	2004/0128470
Fukushima et al	6,289,416
Duprey et al	6,671,705

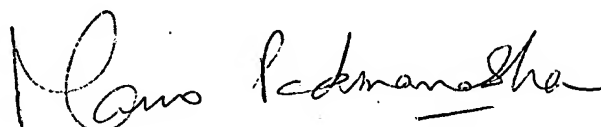
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Masdon whose telephone number is (571)272-6815. The examiner can normally be reached on Monday - Friday, 7am - 4:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (571)272-4210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DM

  
4/17/06

**MANO PADMANABHAN**  
SUPERVISORY PATENT EXAMINER